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ABSTRACT

The influences that demographic changes may have on the design of private pension plans in the twenty-first century are examined. Major demographic factors to be considered include the aging of the population, declining mortality rate, potential for an even lower mortality rate, improved health for all ages and especially for older workers, and improvements in labor productivity. Possible changes in the objectives of private pension plans are considered, including those related to changes in public policy, employer attitudes, and the health care system. Implications of federal regulatory trends are also discussed. Current pension plan coverage is outlined, and the likely future impact of tax benefit changes and retiree health care coverage are noted. The fundamental pension plan design question, whether to shape the plan in the form of a defined benefit plan or a defined contribution plan, or a combination, is considered in the context of trends since 1975. Advantages of each design approach are enumerated. Two additional issues discussed are the target age of retirement and inflation protection. (MSE)

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Implications of Demographic Change for the Design of Retirement Programs

This issue of Research Dialogues *is adapted from a paper on pension design by John H. Biggs, chairman and chief executive officer of TIAA-CREF, delivered at a symposium sponsored by the Pension Research Council, The Wharton School, University of Pennsylvania. It was recently published in* Demography and Retirement: The Twenty-First Century, *edited by Anna M. Rappaport and Sylvester J. Schieber (Westport, Conn.: Praeger Publishers, in cooperation with the Pension Research Council, 1993). We believe this discussion of the longer-term aspects of pension plan design, objectives, and philosophy will be of interest to educational administrators and others in the educational field.*

Introduction

This paper discusses the influences that demographic change may have on the design of private pension plans in the twenty-first century. For illustration, I take the point of view of an organization that in the year 2020 has reached a medium size and decides to establish a pension plan. As plan design is considered, the question is: How will the decisions be influenced by the demographic changes occurring since 1990?

Major Demographic Factors. The following demographic factors are likely to have the greatest impact on pension plan design over the next thirty years.

(1) The aging of the population—a "Florida effect"—in which the whole country takes on the current age profile of Florida. This will be a major factor in 2020. Younger employees will be in relatively short supply, and employees between ages 60 and 70 will be proportionately more numerous than now. (Chart 1 shows the age distribution of the U.S. population in 1988 and the expected changes in the distribution in the year 2020.)

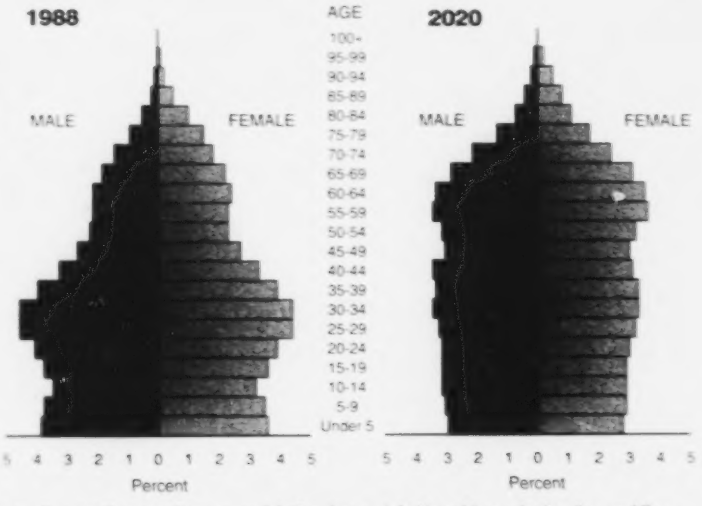
(2) A "squaring of the mortality curve." Lower mortality rates among those 65 to 80 years old will produce a rapidly growing super-old group—those over 85. Average life expectancy from birth has risen from 68.2 years in 1950 to 74.9 years in 1988; average life expectancy at age 65 has risen from 13.8 years in 1950 to 16.9 years in 1988.

(3) Still more rapid growth of the over-85 population, possible if biological limits to the life span have not yet been reached. Managing medical costs and long-term health care for this older population will be a continuing concern; success will depend in part on changes in the U.S. health-care system, which are currently being debated.

(4) Improved health for all ages, but especially for older workers. This may have a major impact on labor-force participation rates at the higher ages, perhaps leading toward later retirements. Levine and Mitchell, for example, forecast that more older workers will remain in the labor force for a variety of reasons, primarily economic, and they question the role of poor health in causing early retirement. Fewer workers may retire for health reasons in the future as health-care access is improved through system reform.

(5) Improvement in labor productivity. Although this is not always seen as a demographic change, some improved

Chart 1
Age Distribution of the U.S. Population
1988 and 2020



Source: Gregory Spencer, *Projections of the Population of the United States, by Age, Sex, and Race: 1988 to 2080*, U.S. Bureau of the Census, Current Population Reports, ser. P-25, no. 1018 (Washington, D.C.: Government Printing Office, 1989), 58-59, 86-87, Table 4, Middle Series.

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labor productivity might reasonably be expected by 2020, with implications for the financial strength of Social Security and private pension plans.

Pension Plan Objectives: Factors for Change

An important issue is whether in the next three decades private pension plans will continue to play an important role in income maintenance in retirement. What changes in the broad purposes of private pension plans might take place?

Public Policy. Public policy will remain a critical factor. Will federal tax policy continue to encourage the voluntary establishment of employer-sponsored pension plans in the private sector? Or will tax policy shift toward individual "empowerment," the responsibility of individuals on their own to make provisions for retirement (perhaps via an IRA model), perhaps with diminished use of employers as the main vehicle? Or, at the other extreme, will federal laws *require* employers to provide pension plans?

Employer Attitudes. A related issue is whether a spirit of quasi-paternalism—to the extent that it exists today—will still be a guiding motivation for employers. The history of private pension plans in this country has been one of identifying mutual employer-employee interests in having a pension plan, and of employers establishing plans for the benefit of employees. Will this equation still be right for the year 2020? Will employers still sponsor plans that provide financial incentives to retire, as now? Or will they instead stress incentives *not* to retire? How will attitudes toward work and retirement—and toward personal wealth consumption patterns over the life cycle—change as economic and social conditions change in the future? Will the quality of work of older employees be raised by improvements in longevity and health care?

Health Care. A similar issue is how employers will relate to the U.S. health-care system in the future. Will employer-based coverage still be the main access route to health coverage? A recent survey of chief executives of the nation's largest companies by the Gallup Organization for the Robert Wood Johnson Foundation found that 91 percent of chief executives believe that a fundamental change or complete rebuilding of the health-care system is needed. The survey also found that 75 percent of the executives believe that the problems can't be solved by companies working on their own, with the two main issues being control of the cost of health care and access to the system for more people.

Federal Regulatory Trends: Design Implications

Although extrapolations from the present might be better described as speculation than as scientific prediction, they can be useful in shaping discussion today of what retirement policy planners should be concerned with tomorrow. Concurrently, trends in federal regulation and tax policy may seem remote from demographic forces, but they are so critical in pension plan design that their effects could swamp the demographics. Further, their own course may also be driven by population demographics.

Federal Regulation. In the last thirty years, federal treatment of pension plans has developed significantly from a very small base into a major national regulatory structure. The government has expanded its role not only in terms of taxes but also in regulations, e.g., since 1968, the Age Discrimination in Employment Act (ADEA), and since 1974, the Employee Retirement Income Security Act (ERISA) and the institutional controls of the Pension Benefit Guaranty Corporation (PBGC).

The key objective of federal pension rules and tests has been to prevent pension plans from abusing the benefits of tax deferral in favor of owners, managers, or highly compensated employees. But one must question whether the regulatory and tax structure, originally intended to encourage retirement plans, has now become so complex that it will be uneconomical for even a medium-sized employer in the future to establish a new plan.

If we project the recent growth in pension regulations from the present to 2020, we are likely to conclude that an employer in 2020 might not find a pension plan feasible. Even a modest projection of growth in tax rules (comparable to projections of population growth) could lead us to expect a "pension-regulation bomb" to explode long before 2020. What can be done to slow this inhibiting growth in complexity?

Individual Taxpayer Alternative. Elsewhere, I have suggested that the key to resolving the regulation problem is to base tax-deferral benefits on the individual taxpayer rather than on the employer. This idea is a simple one and also solves many equity issues regarding tax policy.

Any employer contribution to a pension plan would be "attributed" to the employee and become taxable income. No elaborate nondiscrimination rules need apply to such an employer plan, since the pension contribution would be no different from any other salary payment, applying equally to all employees in proportion to wages or salary. The employee might make additional contributions to a personal pension plan, with provision on his or her income tax return to deduct a flat amount (say $10,000 per taxpayer), but not more than the amount actually funded in the tax year under the employer-sponsored plan (either by employer or employee contributions).

A less complex regulatory structure could provide a much more widespread and equitable system of pension coverage and participation than at present.

Plan Coverage and Participation

Current Extent of Plan Coverage. Current pension coverage in the private sector is not as extensive as is sometimes thought. Data published by the Employee Benefit Research Institute (EBRI) reveal that only about half of all private wage and salary workers are now employed by firms with pensions (described as "covered" in the data). And less than half of these workers actually participate in such plans.

Table 1 shows the current extent of pension coverage and participation in the private and public sectors, based on EBRI data. In the public sector, pension coverage and participation rates are substantially higher than in private employment.

Firm size makes a substantial difference in whether pension coverage is available. Table 2 shows that in 1988, of 59 million workers in large firms (employing 100 or more), 79 percent were employed by employers with a pension plan; of the 22 million workers in small firms (employing under 25), only 17 percent had employers who had a pension plan. To give the absolute contrast, the underlying numbers are significant: Of the 59 million workers in large firms, 46 million were covered; of the 22 million workers in small firms, only 4 million were covered.

Future Impact of Tax Benefit Changes. It seems unlikely that a system of tax benefits for pension plans under which the employees of large companies gain most of the tax benefits can continue for long. Sometime between now and 2020, therefore, one might predict a pension tax revolution, with Congress heeding critics of too little coverage and too much regulation.

If a subsequent change is (1) to a broad-coverage *employee*-based tax benefit, or (2) to no tax benefit of any kind for retirement savings, then the board of directors of our hypothetical 2020 company will be much less likely to base a pension plan on today's model. It is interesting, however, to speculate about employers' behavior under such unfamiliar conditions. Private employers may still be motivated to make it practicable for employees to retire at a reasonable age with reasonable benefits. One possibility would be a new type of plan, as suggested above, that would focus on employees as individuals and provide for regular allocation of a portion of salary (a stated percentage) to an independent funding mechanism, one that would be specifically dedicated to providing retirement income.

Retiree Health-Care Coverage. Employers are already deeply concerned about the escalating costs of health-care coverage for retirees. By 2020, they will have long-since departed from open-ended cost commitments to it. And new, broad-based health-care programs—national in scope—will have been adopted. The U.S. health system, even with between 35 and 37 million people without health insurance, is now the most expensive in the world, costing 40 percent more per capita than that of Canada, the country in second place, and as much as double the cost in other advanced nations.[3] By 2020, an improved, unified approach may be expected toward the vital issues of retirement income, medical care after retirement, and the chronic long-term care needs of retired employees.

Table 1
Percent of Workers in the Private and Public Sectors Whose Employers Have Pension Plans, and Percent of Workers Participating in the Plans, May 1979, May 1983, and May 1988

Sector/ Year	Workers (millions)	Percent of Workers Whose Employers Have a Pension Plan	Percent of Workers Participating in an Employer's Pension Plan
Private Sector			
1979	71	54%	45%
1983	74	49	40
1988	86	51	37
Public Sector			
1979	16	87%	77%
1983	16	83	73
1988	17	92	77

Source: *EBRI Issue Brief*, no. 94 (September 1989): 7, Table 1.

Table 2
Percent of Workers in the Private Sector (by Size of Firm) Whose Employers Have Pension Plans, and Percent of Workers Participating in the Plans, May 1979, May 1983, and May 1988

Firm size/ Year	Workers (millions)	Percent of Workers Whose Employers Have a Pension Plan	Percent of Workers Participating in an Employer's Pension Plan
Fewer than 25 workers			
1979	18	21%	16%
1983	20	19	14
1988	22	17	12
25-99 workers			
1979	10	47%	36%
1983	10	42	35
1988	12	44	31
100 or more workers			
1979	41	84%	70%
1983	45	79	66
1988	59	79	61

Source: *EBRI Issue Brief*, no. 94 (September 1989): 15, Table 5.

Shifts in Pension Objectives

The classical purpose of a pension plan is to give employees an incentive to retire—and the means—at an age that is both desirable for the employee and appropriate for the employer. Finding equilibrium in that decision has had a long history in pension practice. For many years, mandatory retirement was intended to bring about a balance. To some, however, the requirement was harsh and failed to take into account individual differences. However one may feel about government intervention in prohibiting mandatory retirement, it is hard to believe that there will ever be a return to that practice.

Clearly, the Florida effect and the

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squaring of the mortality curve are likely to lead employers to be less interested than now in reducing the labor force by encouraging early retirement. Although some might disagree, I believe that at present the general view of corporate management is that the work-force quality is improved if a company has some success in encouraging voluntary retirement of employees in their late 50s and early 60s. But demographic changes by 2020—the baby boom followed by the baby bust—seem almost certain to cause that view to shift to a higher cluster of ages. Later retirements may also increase when, beginning in 2000, the age for full Social Security retirement benefits will gradually rise from age 65 until it reaches 67 in 2022.

Employees, on the other hand, may not prefer higher retirement ages. Indeed, improved health and higher lifetime wealth accumulations may produce stronger preferences for longer postretirement leisure. Considerable research is now being done to learn more about the factors that influence decisions to retire.[5]

Changing Role of Private Pensions

At present, partly because many of those who have had a working lifetime of pension plan participation are just beginning to retire, private pensions play a lesser role in retirement security than they might be expected to in the future.

Now, according to 1986 data from the Employee Benefit Research Institute and the Social Security Administration, while 27 percent of the U.S. population age 65 and over currently receive money from private employer-provided pensions, only 7 percent rely on private pensions for at least half of their retirement income. In contrast, 91 percent of the population age 65 and over currently receive benefits from Social Security, and 62 percent report that Social Security benefits constitute half or more of their income.[6] By the year 2020, we might expect private pension benefits to have matured further and to play a much stronger role in retirement income support.

Other developments may also significantly influence the future design of retirement incentives and programs under private plans. Our society, for example, will have had several decades of experience with the behavior of a relatively better-off elderly population. It therefore seems unlikely that any employer would be willing to force employees into retirement without adequate financial support. Nor do I believe that our community institutions would permit it, although this assertion may be unduly influenced by my experience of higher education institutions, where virtually all employers have sound pension plans. But one may fairly assume at least some continuing employer paternalism by the year 2020, as employers will want pension provisions that can assure employees at the higher ages that they will actually have the wherewithal to retire.

Defined Benefit and Defined Contribution Alternatives

The most fundamental design question for a pension plan is whether to shape it in the form of a defined benefit plan, a defined contribution plan, or a combination of the two. This will still be true in 2020, unless some regulatory changes not now foreseen should occur.

There is substantial recent evidence of a growing preference for the defined contribution form: first, as the basic or primary pension plan of an employer and, second, as a supplemental or secondary companion to a defined benefit plan.

Table 3 shows that over the period 1975-1985, the defined benefit form was the predominant design for primary pension coverage. But the proportion of primary plan participants covered by defined benefit plans dropped from 87 percent in 1975 to 71 percent in 1985. Over the five-year period 1980 to 1985, defined benefit participants in primary plans declined from 29.7 million to 28.9 million, while defined contribution participants in primary plans doubled from 5.8 million to 11.6 million. Table 3 also shows that under secondary plans from 1980 to 1985, defined contribution plan participants rose from 12.7 million to 21.7 million, while participants in defined benefit secondary plans dropped from 400,000 to 100,000.

Causes of Changing Trends While the trends are evident, the exact causes are not so easily perceived. Clark and McDermed have emphasized increased government regulation:

> ERISA and the regulatory initiatives that followed . . . have increased the administrative and reporting costs for all pensions, especially for defined benefit plans. They have reduced the value of defined benefit pension contracts to firms, thereby limiting their options to use pensions as incentives to influence employee turnover and retirement. This means that the cost of a dollar of future pension benefits to the worker in terms of foregone earnings has risen. In response to these changes, fewer workers and firms will want to pay the extra costs associated with defined benefit plans.[7]

Clark and McDermed also identify a number of other factors. They include structural changes in the economy and the labor force (e.g., reduced union strength, lower employment in the manufacturing sector, and increased employment in services), and the degree of risk associated with the defined benefit plan type.[8]

A different view is taken by Gustman and Steinmeier in their recent paper "The Stampede Toward Defined Contribution Plans: Fact or Fiction?" They conclude that at least half of the shift toward defined contribution plans has been by firms characterized by specific industry, size, or union status, where the early vesting, employee mobility, and simplicity of defined contribution plan design may be particularly attractive. They note that "this means that regulatory changes and or changes in the economic environment have not had nearly as great an effect on plan type as the overall trend toward defined contribution plans might suggest."[9]

Demographic Factors Whether or not "stampede" is the right image, there does seem to be a question about whether the defined benefit plan will be seen in 2020 as a "dinosaur." The outcome will depend upon political and social developments beyond the scope of a paper on demographics. But I think that demographic trends over the next thirty years are likely to weigh the future balance in favor of the defined contribution approach.

Table 3
Private-Sector Defined Benefit and Defined Contribution Pension Plan Participation and Plan Trends, Selected Years, 1975-1985
(Numbers of plan participants in millions)

Plan Type	1975		1980		1981		1982		1983		1984		1985	
	n	%	n	%	n	%	n	%	n	%	n	%	n	%
Primary Plan Participants	40.7	100%	55.5	100%	56.9	100%	57.5	100%	59.0	100%	59.7	100%	40.5	100%
Defined benefit	26.8	87	29.2	84	29.7	80	29.4	78	29.6	76	29.8	75	28.9	71
Defined contribution	3.9	13	5.8	16	7.2	20	8.1	22	9.4	24	9.9	25	11.6	29
Secondary Plan Participants*	7.6	100%	13.1	100%	13.9	100%	15.7	100%	18.9	100%	21.1	100%	21.8	100%
Defined benefit	0.4	5	0.4	3	0.4	3	0.4	3	0.4	2	0.4	2	0.1	0.5
Defined contribution	7.2	95	12.7	97	13.5	97	15.3	97	18.5	98	20.7	98	21.7	99.5

Source: *EBRI Issue Brief*, no. 89 (April 1989): 6, Table 5.
*All secondary plan participants also participate in primary plans.

Let us look at the demographics in terms of how they may affect future choice between a defined contribution and a defined benefit plan. In 2020, the relative supply of skilled new entrants to the labor force from the baby-bust generation onward will be markedly lower than today. Concurrently, the large cohort of baby boomers will be moving into their retirement years; by 2011 the first of the baby boomers will be reaching age 65. The number of U.S. births reached bottom in 1975, and the growth rate of the population aged 20 to 64 is on a downward trajectory over a sixty-year span. With labor-force contraction and the likelihood of continuing high rates of technological and structural change in the private sector, it may be expected that competition for trained employees under age 40 will be intense.

Design Objective. Given the demographics, one can foresee compensation and pension design systems that will (1) attract the younger employee; (2) meet the retirement security needs of an increasingly mobile and technologically based work force; and (3) shift emphasis from early retirement incentives, as at present, to incentives for older employees to work longer so as to build up the additional resources needed for a later and longer retirement period.

These objectives, I believe, will be better served by the defined contribution form. There is no need here to describe in detail the patterns of benefit accruals that occur under a defined benefit plan. But that approach, which results in a "back-loading" of accruals favoring long-service employees, impedes mobility by imposing benefit losses on workers who make several job changes in a lifetime career.

Defined Benefit Plans — Current Advantages

The defined benefit form first appeared in large industries with huge blue-collar work forces early in this century. Initially developed as a means of disability retirement, the plans soon incorporated retirement-age provisions. Their objectives were well suited to an era when heavy physical work was typically involved in industrial production, and when labor mobility was relatively moderate. Patterns of long employee association with a single employer were well served. Long-delayed vesting was typical and was consistent with plan objectives.

Early Retirement Flexibility. One advantage of the defined benefit form is that it can easily incorporate provisions for incentives to retire early, since the retirement funds are drawn from a common pool and not from individual retirement accounts. Thus, the expression of an early retirement incentive is more flexible under the defined benefit plan than under defined contribution. Additional years of service can be credited; actuarial reductions can be readjusted; eligibility dates can be altered; and any increased liabilities can fit easily into the plan's structure. Financing such incentives under a defined benefit plan—especially if overfunded—can be done in a number of ways, and many of them involve no current cash-flow losses even if accounting costs do ultimately increase.

The defined contribution plan, on the other hand, with its individual accounts, is less flexible in the funding of early retirement incentives. Additional money must be added, and it has no appreciable period over which to accumulate. Corporate treasurers see cash depleted, and accounting costs are hard to spread.

Funding Flexibility. Another design advantage of defined benefit plans is that because of their pooling features, funding methods can be quite flexible. But at times such flexibility may threaten the security of future retirement benefits. An example is the leeway available in selecting assumed rates of return on plan assets. Public defined benefit plans in states facing budget deficits, for example, may be (and not infrequently are) tempted to reduce employer payments to plan reserves simply by increasing the interest-earnings assumption, whether realistic or not. Any resulting underfunding of present or future obligations, then, may confront future employees, retirees, and taxpayers with financially weakened plans.

Underfunding of defined benefit plans, public or private, is hardly unknown. In 1989, the newly appointed head of the Pension Benefit Guaranty Corporation (PBGC) released the names of the fifty U.S. companies with the most underfunded pension plans. They included many well-known corporations.[7] The PBGC was established as an insurance program to guarantee defined benefit pension payments up to a stated level. According to the chief of the PBGC, the funding deficiencies of defined benefit plans continue to represent "one of government's biggest hidden liabilities."[8]

Trends toward Defined Contribution Plans

In contrast to the current advantages of the defined benefit form, changed circumstances by 2020 may lead to strong preferences for the defined contribution form. New plan objectives may include enhancing retirement security through later retirements, meeting the needs of a more mobile work force, and satisfying workers' desires for more personal control over retirement assets.

Deferring Retirement. The defined contribution form is more flexible in providing incentives for deferred retirement. Investment income, additional employer contributions, and a reduced life expectancy all automatically lead to an increased annual income for each year deferred. Typically, a retirement income will double if the start of income is postponed from age 65 to age 70. No significant additional cost is borne by the employer. Some employers today—who prefer a younger work force—may regard this incentive effect as perverse. But the changed labor-force demographics of the year 2020 may change "perverse" to "preferred."

Protecting Mobile Workers. Pension objectives in the future may also be changed by the growing awareness that employees can lose pension wealth whenever they change jobs. As noted, defined benefit plans derive from a labor relationship typified by long career service with one employer. Further, employers sought to reduce labor-force mobility by imposing lengthy vesting rules. They showed little concern for shorter-service employees, offering no portability of accrued benefits.

By 2020, faced with a mobile labor force of skilled workers aware of the economic value of pension plans, employers are likely to turn to defined contribution plans, easily structured to provide for portability. If widely available, these can produce consistent career benefits independent of job changes. And their shorter vesting schedules are more productive than under defined benefit plans. (In the latter, even a five-year vesting rule for young, mobile employees produces inefficiently small equities that must then be maintained for several decades.)

Increasing Personal Control. The growing preference evident for more personal control over assets in pension plans through individual accounts also has important implications for the growth of defined contribution plans. The professional experience of our longer-service benefit counselors at TIAA-CREF, although anecdotal, is illuminating. In the 1960s and 1970s, they recall, plan participants showed only moderate interest in annuity accumulations and the nuances of investment performance. Participants regarded once-a-year benefit illustrations as sufficient information on pension progress. They showed little interest in asset allocation ("choose 50 percent for the fixed annuity and 50 percent for the variable annuity, and then forget it") — and only a cursory interest in investment performance. Settlement of the annuity was a simple one-time event.

Today, in response to changing attitudes and expectations, we have quarterly reports; toll-free telephone services; twenty-four-hour-a-day services to provide valuation quotes; a variety of investment accounts; accumulation transfer options; minimum distributions and "interest only" options; automated systems; PC programs to help plan retirement settlements and asset allocations; and libraries of booklets designed to assist individuals in their decision making.

This interest in a greater personal role in the risk/reward of retirement financing and planning has already contributed to the current trend toward defined contribution plans. As noted recently in *Pension World*, "Defined contribution plans, such as 401(k)s or 403(b)s, continue to augment or replace defined benefit plans. Companies are using these participant-directed retirement savings plans as a vehicle for providing retirement income for their employees."

Government pension policy has similarly been influenced by the trend toward an increasing individual role and responsibility. In a 1991 address before the College and University Personnel Association, David George Ball, then assistant secretary for pension and welfare benefits of the U.S. Department of Labor, described the administration's endorsement of individual control:

> This is a theme which underlies our approach to retirement issues. That theme is economic empowerment, which is, in many ways, a trend away from institutional control and toward self-reliance. Economic empowerment recognizes that there must be more personal savings and more personal control over one's own life."

Hybrid Plans. The recent emergence of combination or "hybrid" pension plans is another indication of growing interest in the basic values of the defined contribution approach. Hybrid plans add features of defined contribution plans to existing defined benefit plans. They are designed to improve such plans and make them more responsive to the interests of employers and employees. They include "cash-balance" plans, a type of defined benefit plan with a defined contribution element; "multi-value" plans, combining defined benefit design features with a cash-balance plan; "life-cycle" plans, providing lump-sum benefits at retirement based on final average earnings; and "floor-offset" plans, using a defined benefit plan to establish a (floor) income based on an employee's final average pay and length of service, and offsetting the basic benefit by the accumulation in a defined contribution plan."

Target Age of Retirement

One can also argue that the growing preference for more employee control of retirement funds and retirement arrangements also works against assigning to either an employer or a group (e.g., a union) the decision-making power to require one uniform model for automatic retirement. A return to any use of mandatory retirement ages is highly unlikely.

At TIAA-CREF, we've noted that in recent years our participants have been retiring both earlier and later than "normal" age 65. A preference for earlier retirement continues to be evident, and now we also see some increases in the numbers of participants choosing to retire in their late 60s and in their early 70s. Levine and Mitchell have also noted

an earlier-retirement trend in the labor force: Among men age 60 and older, 66 percent were in the labor force in 1900, but by 1990, the figure had dropped to 27 percent. But their analysis also suggests that the trend toward earlier retirement will slow and perhaps reverse in the next few decades.

Social Security. In about 2030, the increasing number of Social Security benefit applications from retiring baby boomers will arouse widespread concern about the cost. Indeed, the consolidated federal budget is expected to be subject to losses from Social Security beginning about that time. The smaller work force supporting Social Security benefits through payroll taxes may very likely lead to proposals to increase those taxes or to reduce benefits. But another approach, and perhaps the most practicable, will be to find ways to encourage the baby boomers to work to later ages and thereby defer the start of both Social Security and pension benefits.

Labor-Force Participation. Together, the demographics of relative population cohort size, the improved health status of the "young" old, and the economic incentives built into Social Security and private pension plans will in the future lead to greater potential for older workers to continue working beyond the traditional retirement ages. Yet at the same time, pressures to lower typical retirement ages will come from employees who may prefer to allocate more of their increased lifetime wealth to retirement consumption. This of course takes the optimistic view of those economists who say that future generations will have more real lifetime wealth to draw on than the current generation.

The resulting future design of retirement arrangements will doubtless allow for much more variation in retirement ages. The employer will still have in mind a central-age tendency—perhaps still the mid-60s, or perhaps one that mirrors Social Security's age for full benefits—but will explicitly accommodate a flexible range of early and later retirement ages. An important objective will be to ensure that sufficient assets are available to support early retirement.

Inflation Protection

How designers of pension plans provide—or more often today, fail to provide—for inflation is one of the most challenging aspects of pension plan design. I would predict much more complete protection in 2020 than today. But this change will be driven more by experience with pension plans than by demographics per se. Demographics will have two effects in this area: (1) retirees will have longer life expectancies and, hence, greater need for postretirement inflation protection; and (2) they will face medical costs over a longer retirement period, including long-term care costs. Both of these will add to concerns about postretirement inflation.

Adjustment Mechanisms. When pension plans were young and growing—during the postwar decades—the primary focus on the effect of inflation was on active employees. Accordingly, final-salary defined benefit plans, replacing career-average plans, became the pattern. Pension accruals were protected against loss of purchasing power over the employment years. The costs do not seem to have been excessive, since the small depression-era demographic cohort was working its way through these years. For inflation protection after retirement, several approaches, limited in scope, were used: (1) ad hoc adjustments when employers felt sufficient incentive and profitability to make them; (2) a very few explicit formula-driven commitments; and (3) for medical coverage, an open-ended commitment by some employers to provide retirees with inflation-adjusted medical coverage.

The challenge to pension design in 2020, particularly if defined contribution plans predominate, will be to fund inflation-responsive payout arrangements that are financially sound, based on underlying individual-account assets.

Postretirement Increases. I suspect that designers of pension plans in 2020 will be as reluctant as they are now to commit to a guarantee of future inflation protection. But assets that can provide some inflation protection will be widely used: common stocks (both domestic and international), real estate, and perhaps inflation-indexed government bonds or corporate securities (if they become available), all with a strong element of personal control by plan participants.

In addition, pension assets that are not inflation linked, such as fixed-income securities and loans related to real estate, will be used to support annuity forms that do not immediately pay out their full income, but provide for gradual increases. An example of this approach is the TIAA graded payment method of annuity income, under which the earnings on a portfolio of fixed-income assets in excess of a 4 percent payout rate are added back to principal so as to successively increase subsequent annual payouts.

Long-Term Care. Inflation is also a threat in coping with expenses for long-term care. In the future, some employers will add inflation-adjusted insurance arrangements for long-term care, either through the pension plan or, as done now by a growing number of employers, by sponsoring a plan for individually purchased long-term care insurance with inflation-adjustment features.

Summary

This paper examines some of the possible responses of pension plan design to expected demographic developments in the early twenty-first century. The most significant are linked to the aging of the population: a higher proportion of older people by the year 2020—the Florida effect; longer life expectancies; and improved health for those at the higher ages.

Other factors will also affect pension design. These will include the degree of public policy support for employer-sponsored pension plans and for individually based savings plans for retirement; attitudes of employers regarding their own role in providing pensions; the health-care system; the extent and complexity of federal and state pension regulation; and federal and state tax policy relating to retirement savings.

A basic question is whether public policy and demographic factors will

combine to encourage future pension growth. At present, in the private sector, less than one-half of all workers are employed by firms having pension plans, and most of these are in large firms. This is a solid base on which to build, but it does not go far enough. In contrast, substantially all government workers have pension coverage.

The purpose of employer-sponsored pension plans is to give older employees a financial incentive to retire at an age that is both desirable for the employee and appropriate for the employer. The general target age of retirement is changing. Since 1900, there has been a trend toward earlier retirement, with a steady decline in the number of those age 60 and over in the labor force. In the next few decades, owing in part to the Florida effect and to likely shortages of younger skilled workers, this trend may slow and perhaps reverse. Already, the age for full Social Security retirement benefits is scheduled to increase to age 67 by the year 2022. Employers in the future may need to change current patterns of pension design, offering older workers incentives to defer retirement to later ages.

The most fundamental design question for a pension plan is whether to shape it as a defined benefit or a defined contribution plan. As primary coverage, defined benefit plans have long predominated in the business and industrial community. They still do, but the proportion of plan participants covered by defined benefit plans is declining. Many of the defined benefit plans are not fully funded; they are also subject to more extensive, complex, and costly regulation than are defined contribution plans.

In contrast, there has been substantial growth in defined contribution plans for primary pension plan coverage. And for secondary (supplementary) coverage, defined contribution plans are the main form in use.

Demographic factors are likely to favor the future growth of defined contribution plans for both primary and secondary coverage. This is not only because of the relative simplicity of defined contribution plans, but because of their ability to meet the needs of a more mobile work force in a dynamic and technologically based economy. In defined contribution plans, the credited contributions (stated as a percent of salary) continue to grow no matter how many job changes occur. The defined benefit form, with its back-loading of benefits in favor of long-service employees, imposes a substantial loss of benefits on employees who make several job changes in a lifetime career.

A current trend toward a more active, personal role in retirement savings has also led to the increased popularity of defined contribution plans. And as employees become more accustomed to exercising control in making retirement savings decisions, employers in the future may be expected to reduce their traditional paternalistic role in employer-sponsored pension plans.

Finally, pension designers of the future will face the same questions they do today about the effects of inflation on retirement income. They will probably be as reluctant to commit corporate resources to a guarantee of inflation protection as they are now. But plan design provisions can help. These can include defined contribution annuity benefits based on equity investments. They can also include fixed-dollar annuity payment methods under which a portion of investment earnings in excess of a stated payout rate is added back to principal so as systematically to increase subsequent annual retirement income payments.

Yet these measures can go only so far. Protection against runaway inflation is also energized by firm public opposition to inflationary governmental policies. As the proportion of the elderly in the population grows, along with their greater dependence on financial capital for income, the actual demographics of 2020 and beyond might strengthen the resolve of policymaking officials to maintain low or moderate inflation rates. The resulting economic environment would certainly make it easier for pension plan designers, among others, to cope with the future. ❑

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